

What is claimed is:

1 1. A high voltage semiconductor device, comprising:
2 a high concentration collector area of a first conductive type;
3 a low concentration collector area of a first conductive type formed on the
4 high concentration collector area;
5 a base area of a second conductive type formed on the low concentration
6 collector area and having a trench which penetrates the low concentration collector
7 area in a vertical direction at the edge of the trench;
8 a high concentration emitter area of a first conductive type formed on a
9 predetermined upper surface of the base area; and
10 an emitter electrode, a base electrode, and a collector electrode isolated from
11 one another and connected to the emitter area, the base area, and the collector
12 area, respectively.

1 2. The high voltage semiconductor device of claim 1, wherein the width of
2 the trench is 1/10 times the depth of the trench.

3 3. The high voltage semiconductor device of claim 1, further comprising
4 an oxide layer which fills the trench.

5 4. A method of fabricating a high voltage semiconductor device,
6 comprising:
7 preparing a semiconductor substrate having a high concentration collector
8 area and a low concentration collector area of a first conductive type;
9 forming a base area of a second conductive type on the low concentration
10 collector area;
11 forming a high concentration emitter area of a first conductive type on a
12 predetermined upper portion of the base area;
13 forming a trench penetrating the base area and the low concentration
14 collector area at the edge of the base area, spaced apart from the emitter area; and

11 forming an emitter electrode, a base electrode, and a collector electrode
12 connected to the emitter area, the base area, and a semiconductor substrate,
13 respectively.

1 5. The method of claim 4, wherein the trench is formed using a reactive
2 ion etching method.

1 6. The method of claim 5, wherein the reactive ion etching is performed
2 using Cl_2 or SF_6 as a reaction gas.

1 7. The method of claim 4, wherein the width of the trench is 1/10 times
2 the depth of the trench.